A rational approach to e-cigarettes - challenging ERS policy on tobacco harm reduction

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The respiratory community is united in its desire to reduce and eliminate the harm caused by tobacco smoking, which is at present on course to kill one billion people in the 21st century. The stated policy of the European Respiratory Society is to strive "*constantly to promote strong and evidence-based policies to reduce the burden of tobacco related diseases*". In our view, the recent ERS Tobacco Control Committee statement on tobacco harm reduction[1], though well-intentioned,

appears to be based on a number of false premises and draws its conclusions from a partial account of available data. It also presents a false dichotomy between the provision of "conventional" tobacco control and harm reduction approaches. We therefore respond, in turn, to the seven arguments presented against the adoption of harm reduction in the Committee's statement.

1. *The tobacco harm reduction strategy is based on incorrect claims that smokers cannot or will not quit smoking.*

The strategy is in fact based on the need for additional measures to help the estimated 100 million smokers in the European Union who still *have not* quit. Europe has the highest smoking prevalence of all the WHO Regions[2] and business as usual has so far failed to help these individuals. Smoking rates are significantly associated with economic disadvantage and ongoing failure to address this is a huge driver of health inequality.

2. *The tobacco harm reduction strategy is based on undocumented assumptions that alternative nicotine delivery products are highly effective as a smoking cessation aid.*

When smokers use a nicotine replacement product to substitute for cigarettes, even in the absence of intention to quit, they are approximately twice as likely to proceed to quit smoking completely[3]. It would be astonishing if nicotine delivered via e-cigarettes was uniquely ineffective in helping people to quit smoking. In fact, in a definitive head-to-head randomised controlled clinical trial, electronic cigarettes proved to be twice as effective as combination nicotine replacement therapy (NRT) when delivered as part of an evidence-based smoking cessation intervention[4] and in a recently published smaller New Zealand trial, four times more effective than nicotine patches alone[5]. Whether e-cigarettes are "highly effective" is a question of definition, but it is not an "undocumented assertion" to observe that they are certainly at least as effective as medicinal NRT[4, 5] .

3. *The tobacco harm reduction strategy is based on incorrect assumptions that smokers will replace conventional cigarettes with alternative nicotine delivery products.*

Harm reduction strategies do not assume that *all* smokers will completely switch from tobacco cigarettes to alternative products, any more than does the medicinally licensed strategy of using nicotine replacement therapy to cut down on smoking. The strategy is instead based on an initial expectation, subsequently supported by clear empirical evidence[6, 7], that an appreciable proportion will switch.

4. *The tobacco harm reduction strategy is based on undocumented assumptions that alternative nicotine delivery products are generally harmless.*

No credible commentator has argued that reduced harm products are harmless. By definition, harm reduction strategies are based on *reducing* rather than *eliminating* harm and the likelihood that there is some risk from their long term use is explicitly acknowledged in statements on the subject[8-11]. However, the fact that many of the elements found in tobacco smoke that are known to cause toxicity are either absent from e-cigarette vapour or present at much lower levels[12] does support a substantial reduction in this risk. Supportive clinical data in smokers who switch to vaping include rapid improvement in vascular endothelial function[13], profound falls in systemic carcinogen levels to ones equivalent to ex-smokers using NRT[14] and improvement in respiratory symptoms[4]. Understandable concerns over safety arising from the 2019 outbreak of vaping-related lung injury (EVALI) in the US have been alleviated by evidence it was caused by vaping illicit products, in particular THC cut with vitamin E acetate[15].

5. *Alternative nicotine delivery products can have a negative impact on public health even if "stick-by-stick" they turn out to be less harmful than conventional cigarettes.*

The argument this statement introduces is that e-cigarettes are driving increasing numbers of young people to become nicotine addicted and to go on to become smokers. In fact experimentation with e-cigarettes occurs predominantly among young people who have already started smoking or are at

increased risk of smoking[16, 17], thus representing a rational choice over the far more hazardous tobacco product. Most importantly, smoking rates among teenagers in the US and UK are falling [18-22]. The same is true of adult smoking, which is falling in both countries[23, 24], particularly rapidly in the UK as increasing numbers of adult smokers switch to e-cigarettes[24]. Moreover, parental smoking is one of the main drivers of child smoking uptake[22], so as e-cigarette use enables more adults to quit so fewer children will have smoking parents as role models and more children will be protected from *in utero* and passive smoke exposure.

6. *Smokers see alternative nicotine delivery products as a viable alternative to the use of evidence-based smoking cessation services and smoking cessation pharmacotherapy*

Smokers are correct to view e-cigarettes as a viable, evidence-based and proven option to aid smoking cessation[4, 5] and the development of novel approaches for people who have tried conventional pharmacotherapy unsuccessfully should be welcomed. It is also incorrect to regard e-cigarettes as an *alternative* to engaging with smoking cessation services, given the compelling evidence that combining psychological support with nicotine replacement increases quit rates. It is precisely the exclusion of people who are choosing to try to quit smoking using e-cigarettes that is likely to reduce these individuals' chances of success. Most importantly, although the Statement argues that smoking cessation services "exist", in practice provision of smoking cessation services is limited[25, 26], more so given political choices to pursue austerity policies which reduce public health funding. Access to such services may therefore be difficult, especially for the most disadvantaged people and those with disorganised lives. Rejection of harm reduction strategies is thus likely to worsen health inequalities.

7. *The tobacco harm reduction strategy is based on incorrect claims that we cannot curb the tobacco epidemic.*

Harm reduction complements conventional tobacco control strategies, it does not replace them. The UK leads Europe in implementing tobacco control policies, including the exclusion of the tobacco industry from influence on policy making[27] and smoking rates there have declined faster than the rest of Europe as a result[28]. Combined with a rational and regulated approach to electronic cigarettes [Table 1] the UK is now experiencing rates of decline in smoking prevalence - from 20.2 in 2011 to 14.7% in 2018 - faster than for decades[24] and in England the ambition is to reduce smoking prevalence to below 5% across all groups by 2030. European countries in general, and the ERS in particular, should take heed of this evidence, rather than ignore it.

We believe that blanket opposition to e-cigarettes is misguided and will lead to a number of important consequences that are adverse to health. First, smokers who would otherwise have quit smoking by switching to a lower risk product will continue to smoke, and die prematurely from cancer, cardiovascular and respiratory disease. Second, people who have successfully switched to vaping may relapse to smoking if they come to believe that there is no health benefit from vaping, and thus increase their risk of avoidable morbidity and premature death. Third, the pursuit of arguments that vaping can't help people to quit smoking, in the face of clear evidence that it does, risks undermining public trust in science.

We wholeheartedly support the call for increased efforts to deliver "what we know works". E-cigarette use is an epiphenomenon of smoking and current smoking levels are a consequence of past failures and delays in the implementation of tobacco control measures including effective and accessible treatment, tax increases, smokefree legislation, advertising bans and public health campaigns[29]. We respectfully suggest that the Society reconsiders its position, so that we can focus on our shared goal to make smoking history.

TABLE 1 Key messages for a rational approach to vaping and e-cigarettes

1	People smoke tobacco because of nicotine addiction, but the major harms come not from the nicotine but from toxic substances in the smoke.
2	Pharmacotherapy (e.g. dual NRT or varenicline) combined with psychological support should be made available to all smokers to help them to quit and should be considered as the first line approach.
3	E-cigarettes are an effective means to deliver nicotine, with a much lower risk of harm than continuing to smoke.
4	People who choose to use e-cigarettes to cut down or quit smoking should be offered psychological support and access to smoking cessation services.
5	People who choose to use e-cigarettes should be advised that they need to switch *completely* in order to derive substantial health benefits.
6	People using e-cigarettes should be advised to try to quit them too in the long term, but not at the risk of relapsing to smoking.
7	Never-smokers should avoid e-cigarettes.
8	E-cigarettes should continue to be subject to restrictions on age of sale, on advertising and on the strength of e-liquids, as set out in the EU Tobacco Products Directive.
9	Respiratory clinicians must continue to campaign for the full implementation of the WHO MPOWER strategy[30] designed to assist implementation of the Framework Convention on Tobacco Control, as this is the most powerful tool to deliver a smokefree generation. • Monitor tobacco use and prevention policies • Protect people from tobacco smoke • Offer help to quit tobacco use • Warn about the dangers of tobacco use • Enforce bans on tobacco advertising, promotion and sponsorship

	• Raise taxes on tobacco

ACKNOWLEDGEMENTS

No specific financial support was received for this publication.

The authors have no conflicts of interest related to this work. SA chairs the Royal College of Physicians Tobacco Advisory Committee, NSH is Chair of Action on Smoking and Health (ASH UK).

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